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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/544,264

08/02/2005

Takahiro Matsuzawa

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1933 7590 10/01/2009
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EXAMINER

MARTIN, LAURA E

ART UNIT

PAPER NUMBER

2853

MAIL DATE

DELIVERY MODE

10/01/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/544,264	Applicant(s) MATSUZAWA ET AL.	
	Examiner LAURA E. MARTIN	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,6,7,9,11-15,17,20,22,23,25,27-31 and 33-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,6,7,9,11-15,17,20,22,23,25,27-31 and 33-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/1/09 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 17, 20, and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takabayashi et al (JP 2002-307755 A) in view of Bruch et al. (US 2002/0163551 A1) and Moriyama et al. (US 6084604 A).

Takabayashi et al. disclose the following claim limitations:

As per claims 1 and 17: jetting recording ink containing a color material onto a recording medium by a recording head, and colorless ink for improving gloss onto the recording medium by the recording head to perform image formation [0048] according

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to image data (it would have been obvious to one of ordinary skill in the art at the time of the invention that there would need to be data in order to print the image); a control unit to control the image forming unit [0038] – [0050]; determining an adhered amount of the colorless ink per unit area in response to an adhered amount of the recording ink per unit area [0050], and wherein a jetted position of the colorless ink in each unit block is determined preferentially as a position that is not adjacent to a jetted position of the recording ink (preferentially does not mean necessarily, therefore, this does not further limit the claim; however, as based on Applicant's arguments, the examiner has entered a reference that shows such positioning).

As per claims 4 and 20: the adhered amount of the colorless ink is greater in a first unit block where the adhered amount of the recording ink is a given amount or less than in a second unit block where the adhered amount of the recording ink is more than the given amount [0050].

As per claims 35 and 37: the image data has a gradation and the pixel data is obtained by a halftone process [0049]-[0051].

As per claims 36 and 38: the halftone process uses a dither matrix and each said unit block is the same as a unit block of the dither matrix [0049]-[0051].

Takabayashi et al. do not disclose the following claim limitations:

As per claims 1 and 17: the pixel data of the image data is divided into blocks, each said unit area is set as a block formed of an aggregate of n pixels where n is greater than 1, and is set to have a size of 1 mm square or less, and the adhered

amount of the colorless ink for each said unit area is determined such that a sum total of the adhered amounts of ink in the unit area is at least a predetermined amount.

Bruch et al. the following claim limitations:

As per claims 1 and 17: the pixel data of the image data is divided into blocks, each said unit area is set as a block formed of an aggregate of n pixels where n is greater than 1, and is set to have a size of 1 mm square or less, and the adhered amount of the colorless ink for each said unit area is determined such that a sum total of the adhered amounts of ink in the unit area is at least a predetermined amount [0041] (there are 23.62 pixels per millimeter squared, this is the predetermined amount of pixels that will adhere to a millimeter squared area).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and apparatus taught by Takabayashi et al. with the disclosure of Bruch et al. in order to provide a high quality image. It would have been well known in the art at the time of the invention to print at resolutions of different amounts. It also would have been well known in the art at the time of the invention that the size of the unit blocks can vary so as to incorporate more or less data into a unit block and so as to deal with different levels of resolution.

Moriyama et al. disclose the following claim limitations:

As per claims 1 and 17: a jetted position of the colorless ink in each unit block is determined preferentially as a position that is not adjacent to a jetted position of the recording ink (figure 26). While examiner contends that "preferentially" means "not necessarily" such that the claim limitation reads on Takabayshi et al., for arguments

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sake, Moriyama et al. has also been included into the rejection to show the teaching of “preferentially... not adjacent” as based the applicant’s reading the claim.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and apparatus taught by Takabayashi et al. with the disclosure of Moriyama et al. in order to form a high quality image with reduced cockling. It would have been obvious to one of ordinary skill in the art at the time of the invention that black and colored inks can react to form aggregations; this is oftentimes also a purpose of colorless ink when printed with colored inks, such that it would have been obvious to modify the colorless ink of Takabayshi et al. with a black ink of Moriyama et al. to form an image.

Claims 1, 4, 9, 11-13, 17, 20, 25, 27-29, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishimoto et al. (US 6877850 B2) in view of Bruch et al. (US 2002/0163551 A1), and Moriyama et al. (US 6084604 A).

Ishimoto et al. disclose the following claim limitations:

As per claims 1 and 17: jetting recording ink containing a color material onto a recording medium by a recording head, and colorless ink for improving gloss onto the recording medium by the recording head to perform image formation; a control unit to control the image forming unit (column 5, lines 20-41);determining an adhered amount of the colorless ink per unit area in response to an adhered amount of the recording ink per unit area (column 4, line 65-column 5, line 20); and wherein a jetted position of the

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colorless ink in each unit block is determined preferentially as a position that is not adjacent to a jetted position of the recording ink (preferentially does not mean necessarily, therefore, this does not further limit the claim; however, as based on Applicant's arguments, the examiner has entered a reference that shows such positioning).

As per claims 4 and 20: the adhered amount of colorless ink is increased in a first unit block where the adhered amount of recording ink is a predetermined amount or less than in a second unit block where the adhered amount of recording ink is more than the predetermined amount (column 4, line 65-column 5, line 20).

As per claims 9 and 25: a jetted position of the colorless ink jetted onto each said unit block is determined preferentially from a pixel in which the adhered amount of the recording ink is smaller (column 4, line 65-column 5, line 20).

As per claims 11 and 27: the recording ink contains fine particles (column 3, lines 37-55).

As per claims 12 and 28: the recording medium includes a micro-porous recording medium (column 1, lines 18-32 and column 8, lines 36-51).

As per claims 13 and 29: a surface layer of the recording medium contains a thermoplastic resin (column 8, lines 36-51).

As per claims 33 and 34: the recording ink is an aqueous pigment as said color material, and the colorless ink is an aqueous ink containing a dispersed resin and substantially no pigment (column 3, lines 5-13).

Ishimoto et al. do not disclose the following claim limitations:

As per claims 1 and 17: the pixel data of the image data is divided into blocks, each said unit area is set as a block formed of an aggregate of n pixels where n is greater than 1, and is set to have a size of 1 mm square or less, and the adhered amount of the colorless ink for each said unit area is determined such that a sum total of the adhered amounts of ink in the unit area is at least a predetermined amount.

Bruch et al. the following claim limitations:

As per claims 1 and 17: the pixel data of the image data is divided into blocks, each said unit area is set as a block formed of an aggregate of n pixels where n is greater than 1, and is set to have a size of 1 mm square or less, and the adhered amount of the colorless ink for each said unit area is determined such that a sum total of the adhered amounts of ink in the unit area is at least a predetermined amount [0041] (there are 23.62 pixels per millimeter squared, this is the predetermined amount of pixels that will adhere to a millimeter squared area).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and apparatus taught by Ishimoto et al. with the disclosure of Bruch et al. in order to provide a high quality image. It would have been well known in the art at the time of the invention to print at resolutions of different amounts. It also would have been well known in the art at the time of the invention that the size of the unit blocks can vary so as to incorporate more or less data into a unit block and so as to deal with different levels of resolution.

Moriyama et al. disclose the following claim limitations:

As per claims 1 and 17: a jetted position of the colorless ink in each unit block is determined preferentially as a position that is not adjacent to a jetted position of the recording ink (figure 26). While examiner contends that "preferentially" means "not necessarily" such that the claim limitation reads on Ishimoto et al., for arguments sake, Moriyama et al. has also been included into the rejection to show the teaching of "preferentially... not adjacent" as based the applicant's reading the claim.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and apparatus taught by Ishimoto et al. with the disclosure of Moriyama et al. in order to form a high quality image with reduced cockling. It would have been obvious to one of ordinary skill in the art at the time of the invention that black and colored inks can react to form aggregations; this is oftentimes also a purpose of colorless ink when printed with colored inks, such that it would have been obvious to modify the colorless ink of Ishimoto et al. with a black ink of Moriyama et al. to form an image.

Claims 6, 7, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takabayashi et al. (JP 2002-307755 A), Bruch et al. (US 2002/0163551 A1) and Moriyama et al. (US 6084604 A), and further in view of Onishi et al. (US 2001/0015745 A1).

Takabayashi et al. as modified disclose the following claim limitations:

Claims 1 and 17.

Takabayashi et al. as modified do not disclose the following claim limitations:

As per claims 6 and 22: the predetermined amount of colorless and recording ink is at least 2 cc/m².

As per claims 7 and 23: the sum total of the adhered amounts of the colorless ink and the recording ink in the unit area is less than 13 cc/m².

Onishi et al. disclose the following claim limitations:

As per claims 6 and 22: the predetermined amount of colorless and recording ink is at least 2 cc/m² [0018].

As per claims 7 and 23: the sum total of the adhered amounts of the colorless ink and the recording ink in the unit area is less than 13 cc/m² [0018].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the recording method taught by Takabayashi et al. as modified with the disclosure of Onishi et al. in order to provide a high quality image. It would have been well known in the art at the time of the invention that the amount of ink within a recording area can vary as based on printing resolution.

Claims 6, 7, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishimoto et al. (US 6877850 B2), Bruch et al. (US 2002/0163551 A1) and Moriyama et al. (US 6084604 A), and further in view of Onishi et al. (US 2001/0015745 A1).

Ishimoto et al. as modified disclose the following claim limitations:

Claims 1 and 17.

Ishimoto et al. as modified do not disclose the following claim limitations:

As per claims 6 and 22: the predetermined amount of colorless and recording ink is at least 2 cc/m^2 .

As per claims 7 and 23: the sum total of the adhered amounts of the colorless ink and the recording ink in the unit area is less than 13 cc/m^2 .

Onishi et al. disclose the following claim limitations:

As per claims 6 and 22: the predetermined amount of colorless and recording ink is at least 2 cc/m^2 [0018].

As per claims 7 and 23: the sum total of the adhered amounts of the colorless ink and the recording ink in the unit area is less than 13 cc/m^2 [0018].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the recording method taught by Ishimoto et al. as modified with the disclosure of Onishi et al. in order to provide a high quality image. It would have been well known in the art at the time of the invention that the amount of ink within a recording area can vary as based on printing resolution.

Claims 14 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishimoto et al. (US 6877850 B2), Bruch et al. (US 2002/0163551 A1) and Moriyama et al. (US 6084604 A), and further in view of Shigemura (US 2001/0017642 A1).

Ishimoto et al. as modified disclose the following claim limitations:

Claims 13 and 29.

Ishimoto et al. as modified do not disclose the following claim limitations:

As per claims 14 and 30: a fixing process including heating or pressurization is implemented for the recording medium on which the recording ink and the colorless ink are jetted.

Shigemura discloses the following claim limitations:

As per claims 14 and 30: a fixing process including heating or pressurization is implemented for the recording medium on which the recording ink and the colorless ink are jetted [0204].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method taught by Ishimoto et al. as modified with the disclosure of Shigemura in order to provide a higher quality image on different types of substrates. It would have been well known in the art at the time of the invention that resins can be hardened by means such as heating, radiation, or pressurization.

Claims 15 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takabayashi et al. (JP 2002-307755 A), Bruch et al. (US 2002/0163551 A1) and Moriyama et al. (US 6084604 A), and further in view of Kida et al. (WO 03/024723) [US 2004/0196351 A1 will be used for referencing and assumed as an English translation of the PCT application].

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

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the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Takabayashi et al. as modified disclose the following claim limitations:

Claims 1 and 17.

Takabayashi et al. as modified do not disclose the following claim limitations:

As per claims 15 and 31: a rate of light absorbance change in mixing the recording ink and the colorless ink with each other is less than 5%.

Kida et al. disclose the following claim limitations:

As per claims 15 and 31: a rate of light absorbance change in mixing the recording ink and the colorless ink with each other is less than 5%.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink set taught by Takabayashi et al. as modified with the disclosure of Kida et al. in order to improve image quality and gloss. It would have been obvious to one of ordinary skill in the art at the time of the invention that, when mixing a

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colorless ink with one that is colored, different levels of absorbance can be formed, including ones that do not vary substantially from the absorbance of the colored ink alone.

Claims 15 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishimoto et al. (US 6877850 B2), Bruch et al. (US 2002/0163551 A1) and Moriyama et al. (US 6084604 A), and further in view of Kida et al. (WO 03/024723) [US 2004/0196351 A1 will be used for referencing and assumed as an English translation of the PCT application].

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing

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that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Ishimoto et al. as modified disclose the following claim limitations:

Claims 1 and 17.

Ishimoto et al. as modified do not disclose the following claim limitations:

As per claims 7 and 23: the sum total of the adhered amounts of the colorless ink and the recording ink in the unit area is less than 13 cc/m^2 .

Kida et al. disclose the following claim limitations:

As per claims 7 and 23: the sum total of the adhered amounts of the colorless ink and the recording ink in the unit area is less than 13 cc/m^2 [0018].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink set taught by Ishimoto et al. as modified with the disclosure of Kida et al. in order to improve image quality and gloss. It would have been obvious to one of ordinary skill in the art at the time of the invention that, when mixing a colorless ink with one that is colored, different levels of absorbance can be formed, including ones that do not vary substantially from the absorbance of the colored ink alone.

Response to Arguments

Applicant's arguments with respect to claims 1, 4, 6, 7, 9, 11-15, 17, 20, 22, 23, 25, 27-31 and 33-38 have been considered but are moot in view of the new ground(s) of rejection.

Examiner does note that applicant believes that "preferentially" means that the action occurs; however, the examiner believes that "preferentially" does not mean that the action necessarily occurs. One can prefer to have something done one way; however, that does not necessarily mean it happens that way. Examiner notes that the above rejection is to satisfy applicant's meaning of the word "preferentially"; however, it is believed that the previous rejection in which "preferentially" was believed to be "not necessarily" such that it is not required to have the limitation of the colorless ink not adjacent to the colored ink, and the previous rejection still reads upon the claim limitations as based on this argument.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAURA E. MARTIN whose telephone number is (571)272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Laura E. Martin/
Examiner, Art Unit 2853